We claim:

1. An orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs which have at least 80% homology with the sequence SEQ ID NO: 1.

2. An orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs, wherein the gene or its homologs derive from Ashbya gossypii.

3. An amino-acid sequence encoded by a gene or its homologs as claimed in claim 1 ~~or 2~~.

4. An amino-acid sequence as claimed in claim 3, which comprises an enzymatically active protein.

5. A gene construct comprising an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs as claimed in claim 1 ~~or 2~~, where the gene or its homologs is functionally linked to one or more regulatory signals.

6. A gene construct as claimed in claim 5, whose gene expression is increased by the regulatory signals.

7. A vector comprising a gene construct as claimed in claim 5 ~~or 6~~.

8. A microorganism comprising at least one gene construct as claimed in claim 5 ~~or 6~~.

9. A process for producing uracil-auxotrophic microorganisms, which comprises modifying an orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs as claimed in claim 1 ~~or 2~~ in such a way that the protein encoded by the gene is inactive, and this modified gene is introduced into the microorganisms and integrated by homologous recombination into the genome of the organisms, and subsequently these microorganisms are selected for resistance to 5-fluoroorotic acid.

10. A process for inserting DNA into microorganisms, which comprises inserting a vector which comprises an intact orotidine-5'-phosphate decarboxylase gene having the sequence SEQ ID NO: 1 or its homologs as claimed in claim 1 ~~or 2~~, together with at least one other gene, into a microorganism

which is deficient in orotidine-5'-phosphate decarboxylase genes, and cultivating this microorganism on or in a culture medium without uracil.

11. A process as claimed in claim 10, wherein a linear DNA is used as vector.

12. A process as claimed in claim 10 ~~or 11~~, wherein an Ashbya gossypii strain is used as microorganism deficient in orotidine-5'-phosphate decarboxylase genes.

13. A process as claimed in ~~any of~~ claims 10 ~~to 12~~, wherein at least one gene of riboflavin synthesis is inserted as other gene into the microorganism.

14. The use of a gene sequence or its homologs as claimed in claim 1 ~~or 2~~ as selection marker.

15. The use as claimed in claim 14 in Ashbya gossypii.